

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
30 June 2005 (30.06.2005)

PCT

(10) International Publication Number
WO 2005/059552 A1

(51) International Patent Classification⁷: **G01N 33/53**

(21) International Application Number:
PCT/US2004/042007

(22) International Filing Date:
15 December 2004 (15.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/529,643 15 December 2003 (15.12.2003) US

(71) Applicant (for all designated States except US): **UNIVERSITY OF PENNSYLVANIA** [US/US]; 3160 Chestnut Street, Suite 200, Philadelphia, Pennsylvania 19104-6283 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DIAMOND, Scott, L.** [US/US]; 610 Yale Road, Bala Cynwyd, PA 19004 (US). **GOSALIA, Dhaval** [IN/US]; 3613 Powelton Avenue, Apt.#3R, Philadelphia, PA 19104 (US).

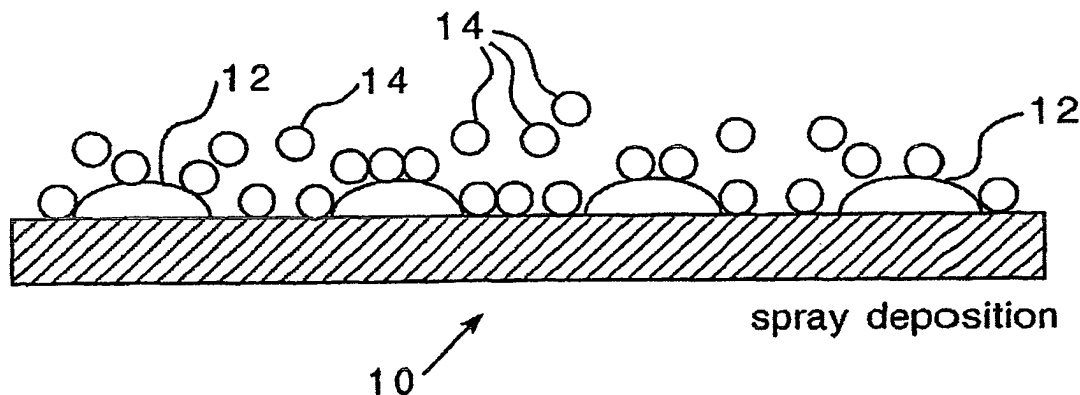
(74) Agents: **JOHNSON, Barbara, E.** et al.; Webb Ziesenheim Logsdon Orkin & Hanson, P.C., 700 Koppers Building, 436 Seventh Avenue, Pittsburgh, Pennsylvania 15219-1818 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: METHOD AND DEVICES FOR RUNNING REACTIONS ON A TARGET PLATE FOR MALDI MASS SPECTROMETRY



(57) Abstract: A peptide or protein microassay method and apparatus in which a wide variety of chromogenic or fluorogenic peptide or protein substrates of interest are individually suspended or dissolved in a hydrophilic carrier, with aliquots of each substrate being deposited in an array or microarray of reaction loci, or "dots." Each dot, therefore, provides an individual reaction vessel containing the peptide or protein of interest, to which a biological sample may be applied for assay purposes. The sample is applied to the array or microarray of dots by one of a variety of focused sample application techniques, including aerosolizing or misting of the sample, or target application of the sample, onto each dot without creating fluid channels between the dots which would cause cross-contamination. In additional aspects, the present invention provides methods of transferring samples from an electrophoretic gel to a target plate for subsequent MALDI MS analysis. Chemical reactions of interest can be run directly on the target plate, and the reaction products on the target are then prepared for MALDI MS analysis by drying and aerosol deposition of matrix material, without the need for salt removal and additional processing steps.

WO 2005/059552 A1



Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.